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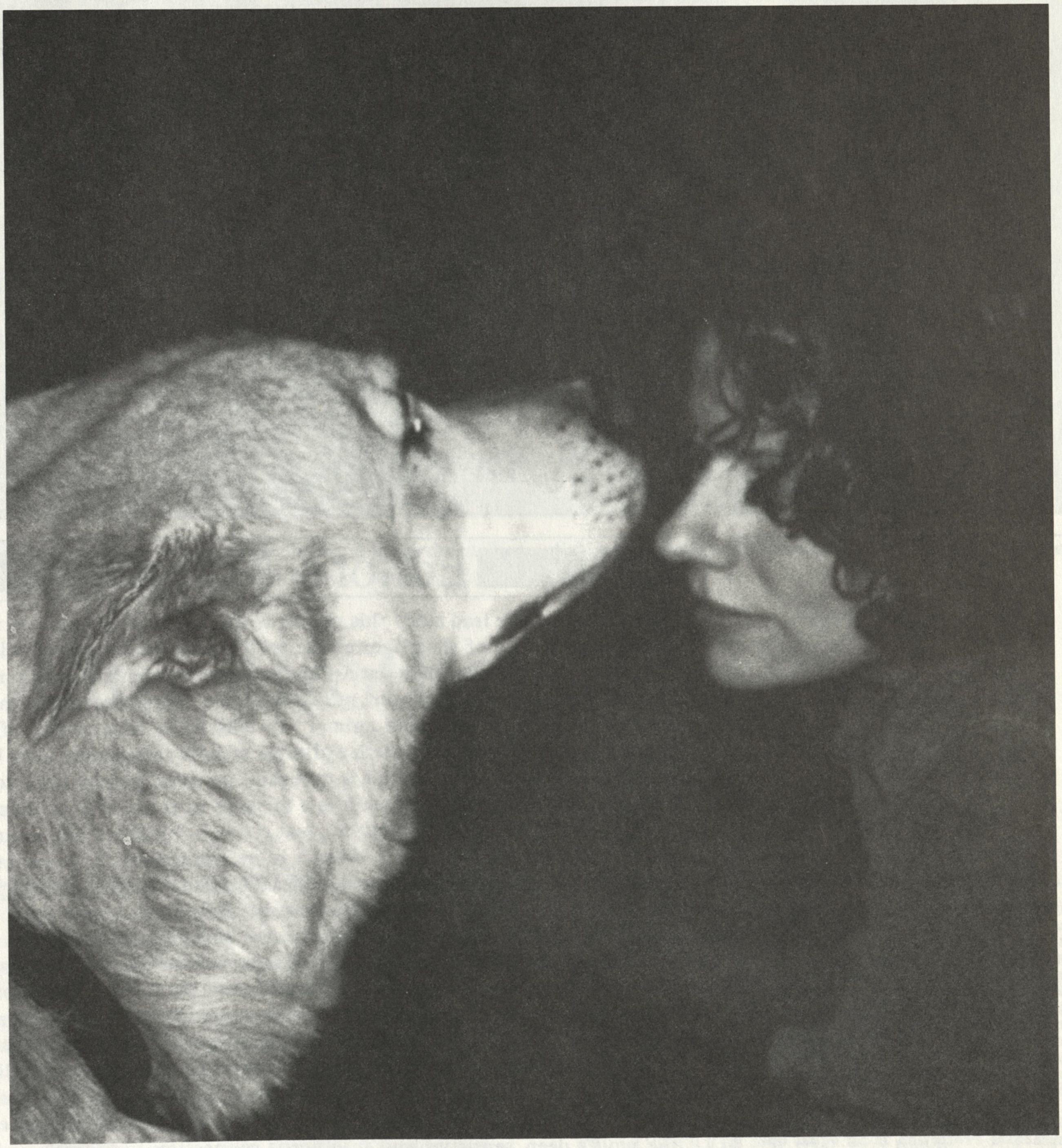

Learning from the Wolves

June/1990

CONNECTICUT
ENVIRONMENT
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Yellow-fringed orchid
(Platanthera ciliaris)

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Editor's Note

The subject of our lead story this month is the work of one man to raise our understanding of the plight of the wolf. Doug Radziewicz, environmental educator at the Northeast Audubon Center in Sharon, is an extraordinary guy with an important message. To see Doug interact with the wolves, to see how man and animal can exist in a relationship of the deepest mutual respect, is to catch a glimpse of how things may have been 10,000 years ago. Just to see this is to regain, for even a short time, touch with very fundamental reality. It is a mistake to think that as man got more complex, as his caves grew to great cities, as his stone axe became a nuclear missile, that man also became more intelligent. It is not man's intelligence that is so impressive; it is his complexity. If you see Doug and the wolves interact, you will get a sense of that.

The questions we ask ourselves in these days of environmental concern are: What is to be done? How did we stray so far from our own truth? How can we act in a way that is responsible and correct and conducive to the survival of the human pack? You can answer these questions in terms of very complex 20th century science, in parts per billion, or pico-curies, or risk-benefit ratios. Or you might answer them in more simple and direct terms. You might find the answer in the sheer honesty and purity of the wolf, in the wolf's absolute and undeviating respect for all things, or in the wolf's deep, sensitive, and intelligent connection to bedrock reality. You can find it the wolf's strength, gentleness, and truth.

Doug Radziewicz says that the wolves are his teachers. We can be grateful to Doug for being sensitive enough to perceive that teaching, and for being compassionate enough to share it with us. R.P.

Doug Radziewicz and Rasta at an outreach program at Ripton School in Shelton. Radziewicz has developed an uncanny sensitivity to and respect for the wolves. (Photos: R. Paier)

Our Brothers the Wolves

by

Thomas Robinson

Environmental Intern

PROBABLY NO OTHER SPECIES OF ANIMAL has had a closer relationship to man than the wolf. Somehow more than only a biological entity, measurable and predictable, the wolf has occupied a unique space in the human imagination. Since the Dark Ages, and earlier, the image of the wolf has appeared in mythology, religious iconography, folklore, and literature. Our culture is steeped in wolf imagery -- negative imagery. The wolf has represented the antithesis to all that Western man has tried to accomplish: instead of enlightenment, the wolf is darkness; instead of civilization, the wolf is wilderness; instead of order, the wolf is chaos. Persistently hunted for ritualistic and economic reasons, the wolf has become a scapegoat. The wolf, once considered a spiritual teacher and practical model for living with, instead of against, the cycles of nature, is now threatened with complete annihilation. Even with today's increased environmental awareness, wolves are still being killed off at alarming rates. Responsibility for the survival of wolves rests solely with man -- it is not a question of biology, but of politics. And since political battles so often hinge on simple images and myths, it is necessary to see the wolf's true nature, to "demythologize" the beast.

ALTHOUGH NO WOLVES remain wild in Connecticut (the last was killed around 1860), the National Audubon Society in Sharon, is home to two wolves; Rasta, a male timberwolf, and Wolfie, a female red wolf. The two wolves were obtained about three years ago by the DEP. (Wolfie was confiscated and Rasta was donated). At Sharon, Doug Radziewicz, an environmental education specialist, has developed an intimate relationship with the wolves. Radziewicz has studied the wolf through literature and biological journals. But when he actually met Wolfie and Rasta, he said, he saw something more. "There was just something you feel."

Radziewicz joined the staff of the Audubon Society just under two years ago and since then has attempted to truly know the wolves. He "runs" the wolves (actually they run him -- sometimes into the ground), has observed their subtle and precise means of communication, has witnessed their complex systems of behavior. He has learned a deep respect for the wolves, for Wolfie and Rasta, to be sure, but also for the species. It is with this knowledge, respect, and love that Radziewicz took over and improved the "Animal Outreach" program through which he hopes to instruct people on the true nature of the wolf.

Animal Outreach is designed primarily for nature centers, environmental organizations, and schools of all levels. On average, Radziewicz, Wolfie, and Rasta hold 30 programs each year. Demand for these programs continues to increase, keeping Radziewicz on a hectic schedule, and he is encouraged by the increased public interest in the wolves. "We're willing to go to kindergartens, high schools, colleges, nature centers, garden clubs, anywhere there are people who are concerned about the wolf and sincerely interested in trying to learn a little bit more."

ACTUALLY SEEING THE WOLVES and hearing Radziewicz describe them, one is impressed by this clearly superior animal. Possessing "the largest brain-per-body ratio of any land animal," the wolf has developed complex and effective methods of communication. The "howl" is probably the most well known of these methods -- and if the audience displays its enthusiasm by imitating a howl, Wolfie and Rosta are likely to give a real demonstration during the shows. Wolves communicate with each other by a large variety of subtle gestures from virtually all areas of the body -- caresses, and sometimes bites, intense eye contact, growls, groans, and whimpers. This language is essential for a successful hunt, the establishment of hierarchical relationships within packs, or simply to indicate a playful frame of mind. During a recent show in Avon, the audience was fortunate enough to hear Wolfie and Rasta howl. Triggered by a nearby air siren, the wolves, and then the audience, engaged in about two minutes of howling. Howling can be used to indicate practically anything a wolf wishes to convey. What was curious about this "howling" though, was that the wolves did not seem to be "speaking" with one another, and were instead seemingly responding to something greater; the demonstration evoked a sense of shared spirituality between the wolves.

Besides the complexity of the wolf's mental capacities, its level of strength and endurance is equally astounding. "The wolf thrives on speed, strength, and endurance," Radziewicz explains. "That's important for the open chase and for the hunt. A wolf may have to cover a territory of a hundred or more acres every day. They may run at a five-mile-per-hour trot non-stop for half a day, or run at a 25-mile-per-hour trot for 20 minutes without ever stopping to take a break." During intense chases the wolf can achieve a "speed nearing 40 miles per hour to help bring the animal down." In areas such as Alaska, "land and shoot" methods are still permitted. This practice involves tracking a wolf for hundreds of miles with helicopter and rifle.

> "Men would look to the wolf as a teacher. But when that changed, the wolf changed and the wolf died."
>
> *Doug Radziewicz*

While intelligence and strength are notable qualities, the true beauty of the wolf is found in its ability to balance these two traits. Radziewicz recalls an incident indicative of the wolf's capacity for combining and controlling its gifts. "I approached Rasta, attempting some physical contact. I got close to his face, somewhat cheek to cheek, and he grabbed my upper lip with his canine teeth." Knowing the terrific crushing power of Rasta's jaw -- over 1800 pounds per square inch (German sheperds exert close to 750 p.s.i.), Radziewicz was pleasantly surprised when Rasta simply pinched his upper lip. "He didn't growl, he didn't snarl, he didn't bark at me. But he just let me know in a special way that it's not time yet. He was telling me to take my time to become a human member of the pack."

THROUGH SPENDING INNUMERABLE HOURS with the wolves, Radziewicz has established closer ties to Wolfie and Rasta than his warning pinch suggests. This attachment and concern for the wolves on a personal level has led Radziewicz to conduct extensive research on the wolf species as a whole. And it is with a sense of loss that Radziewicz claims that in years past, wolves and humans "were brothers, their spirits touched. They had a special understanding of each other. Men would look to the wolf as a teacher. They looked to the wolf as an example of how to hunt. They looked to the wolf and saw that the wolf will only take what it needs and will take no more and they learned from this, and they realized that if they follow the way the wolf lives, they will live th same way and they will lead a successful, healthy life as far as keeping the prey in balance and in keeping themselves full and keeping their species alive. And they followed the wolf. But when that changed, the wolf

“What we learn from the wolves is respect Respect for the forest, and for all living and non-living things.”

Doug Radziewicz

changed and the wolf died.” Wolves offered a model for living in harmony with their environment and with their society or pack.

IN HIS OUTREACH PROGRAMS, Radziewicz asserts, in concurrence with many wolf scholars, that man’s tendency to idolize and follow the wolf ceased as soon as his creative impulse urged him to convert the wilderness into farmland. Once agricultural civilizations developed, territorial competition was soon unavoidable, particularly in Europe where wolves were quite prominent. This is, to be sure, an extremely condensed version of the detailed processes which occurred in this transformation, but will serve as a starting point. Ousted from the forests, wolves were deprived of their natural habitats as well as their sources of nutrition. For survival, the wolves entered villages to consume livestock, which had by this time become a source of economic stability.

From this initial designation as competitor and foe, the wolf became encased in lies, mythology, and propagated prejudice. For example, at night on the roads between villages, panic about the threat of thieves was matched only by fear of hungry, ambushing wolves. The wolves did, in fact, create such a real threat to the life of citizens and to the economic existence of villages – livestock suited the wolves, too.

But there is more to the terror caused by wolves than biological, agricultural, and economic logic can explain. There was a transformation of mind. Earlier peoples turned to the wolves for guidance because they saw a similarity of natures. American Indians, for example, revered the wolf as a spiritual guide. Imitating the wolf in hunting practices and celebrating it with ritualistic costume designed to resemble the wolf, many peoples aspired to the balanced and conservative life of the wolf. Radziewicz describes a kinship of spirit between wolf and man, a relationship in which it was difficult to distinguish human and animal characteristics.

Villages and later communities also recognized a close similarity to the wolves. But rather than emphasizing the noble qualities which they shared, men began to see only the evil aspects. Rather than witnessing the graceful wolves, at peace with existence in the wilds, they instead saw, during the Black Plague for instance, rabid wolves standing atop piles of corpses, threatening the village with disease and subsequent death, and in each instance resembling man’s own scavenging state at a time of such acute disease and famine. The wolf came to represent what man feared most – himself. And so man tried to destroy the wolf.

CONVICTIONS THAT THE WOLF must be annihilated were intensified by the symbolism which developed around the wolf’s hunting patterns. A creature of the half light hours, dawn and dusk, the wolf remained a mysterious and fearful predator. The wolf occupied a gray area in the human mind – it represented a vague image and required explanation. At a time when man was trying to extricate himself from the Dark Ages into the “light” of rebirth and knowledge, the wolf, a hunter of the half light, came to represent an unwanted anchor to the past, an element which was inhibiting man’s progress. Barry Lopez tells us that the Latin expression for dawn is *inter lupem et canem* – “between wolf and dog.” Thus, he concludes, “darkness and savagery are symbolized in the wolf, while enlightenment and civilization are symbolized in the tame wolf.” In addition, it was the wolf’s association with this eerie period of half light from which werewolf folklore and myth was conceived. Notably, the werewolf tales, stories describing affected men digressing into a baser creature of evil, betray man’s fear of his intimate, unseparated relationship to the wolf.

Prejudices against the wolf did not end in the Old World, however. In fact, sentiment against wolves was so strong among European settlers in the New World that violence against them took the form of legislation. As early as 1630, for instance, the first bounties were placed on North American wolves. Still an object of primitive fear, the wolf was a virtual devil to the European settlers of the New World. Against man’s technology the wolf had no chance for survival and by 1865 wolves were expelled from the east coast. The push for ridding the American landscape of wolves was assisted by a 1905 enactment condoning biological warfare techniques against the wolf. By 1915 the wolf would not be permitted on federal lands.

The perceived, and often real, threat which wolves posed to man and his property, coupled with the condemnatory mythology surrounding the animal, have contributed to an alarming threat to the survival of the species. Radziewicz comments: “Of everything that has happened to the wolf over the past 100 years, the results today are scary. The wolves that remain in the lower 48 total approximately a population of 1250. That’s all.” In these lower 48, wolves are found primarily in Minnesota, Wisconsin, Michigan, Montana, Idaho. Concerning wolves in Alaska, Radziewicz states “the population 10 years ago was 10,000. The population there today is 3000 to 5000. So if the population continues to fall at this rate, the wolf is going to become in Alaska a threatened or endangered species within the next 10 years.” Equally disturbing is the rate at which Canada is wiping out its wolf population. "They seem to be doing what we did 100 years ago. They are killing, poisoning, trapping the wolf -- just like we did." Indeed, just as we still do.

Radziewicz remains hopeful that these trends will change. During the 20th century there has developed a greater sense of responsibility for the environment, which includes the wolves. "There are a lot of people trying to do something in our country," said Radzewicz. "First of all, one of the best places for the wolf and wolf recovery is at Yellowstone. Over 50 years ago, in 1926, the last wolf was killed. Now the wolf has a chance to come back, but only with the help of people. It's not a biological problem to reintroduce the wolf into that park, but it's a political problem." Primary opposition to this type of legislation is from powerful livestock owners, Radziewicz says.

THE FACT THAT THE SURVIVAL of the wolf is completely in the hands of man does not simply serve as a reminder of the responsibility which we hold for the entire globe. Instead, that the wolf, the very symbol of wilderness, should be controlled by political strategy and manipulation emphasizes the fact that man has already, and purposefully, extinguished a part of himself. So much of what man fears about the wolf are its wild, searching, and mysterious tendencies. These are qualities which are shared by men, traits which have inspired more hope than terror. If only to preserve the symbolic sense of wilderness in the form of the wolf, the species is worth saving.

More importantly, the wolf remains one of our greatest teachers. When asked specifically what he has learned from Wolfie and Rasta, Radziewicz said, "Respect. Respect for them and respect for what's around us. And what I feel in some subtle ways is presented when we're with them throughout the sanctuary. Just respect for the forest, and everything that is there, both living and nonliving. The wolves are quite the example. They're always trying to teach us, but we have to be willing to learn from them." While studying the wolf from afar is valuable, true learning, Radziewicz asserts, comes through knowing and being with the wolves. It is through this connection that man also can come to know himself. It is a contact we cannot afford to lose.

Doug Radziewicz can be reached at:
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Sharon, CT 06069
(203)364-0520

The Outreach Programs are available within a 180-mile radius of Sharon.

To help the wolves, visit your local library and read up. There is a wide range of books from which to choose: biological studies, short stories, histories, and ecological works -- something for everyone. Try to attend one of the outreach programs. Write to your Congressmen urging them to support reintroductory legislation. Other critical offices include the governor of Alaska, the governor of Wyoming, and the Secretary of the Interior of the United States. ■

Rasta and Wolfie nuzzle each other. Communication between wolves is subtle and complex, and is all directed toward the survival of the pack.

Mary Pasco Sherwood, founder of the Wildflower Festival and first woman forester in the U. S. (Photos: Arline Rick)

The First Lady of Wildflowers

by
Carol K. Davidge
Public Information Coordinator
Connecticut State Museum
of Natural History

MARY PASCO SHERWOOD, age 84, might be called the first lady of Connecticut wildflowers, of forestry, of Walden Pond, or many other titles appropriate to a woman who has fought to save native plants in Connecticut and New England for most of a century.

Mary's early years did not indicate that her life would be extraordinary. Born in Hartford in 1906, she was forced at age 15 to drop out of high school by a father who believed that women should not be educated, that they should marry young or go to work. The unmarried Mary worked for six years on the assembly line at the Royal Typewriter Company to pay her keep at home.

Mary became active in the YWCA where President Amy Whelcher and Industry Liaison Alice Brooks saw her potential and helped her gain admittance to Hartford High School as a 21-year-old junior. After Mary finished high school, they asked Albert E. Moss, professor of forestry at The University of Connecticut, to accept her as a student.

"All I wanted to do was live in the woods," recalled Mary. "But nobody had ever heard of a woman forester."

But Moss believed in her. "Professor Moss had a family with lots of intelligent women. His wife had been a teacher, and his two sisters were in the agricultural extension service," said Mary. "He just assumed that it was okay for me to study forestry because he was used to strong women," she said.

By graduating from UConn's forestry program in 1934, Mary Pasco became America's first woman forester. But 10 years elapsed before she held a full-time job as a forester because forestry jobs were reserved for males.

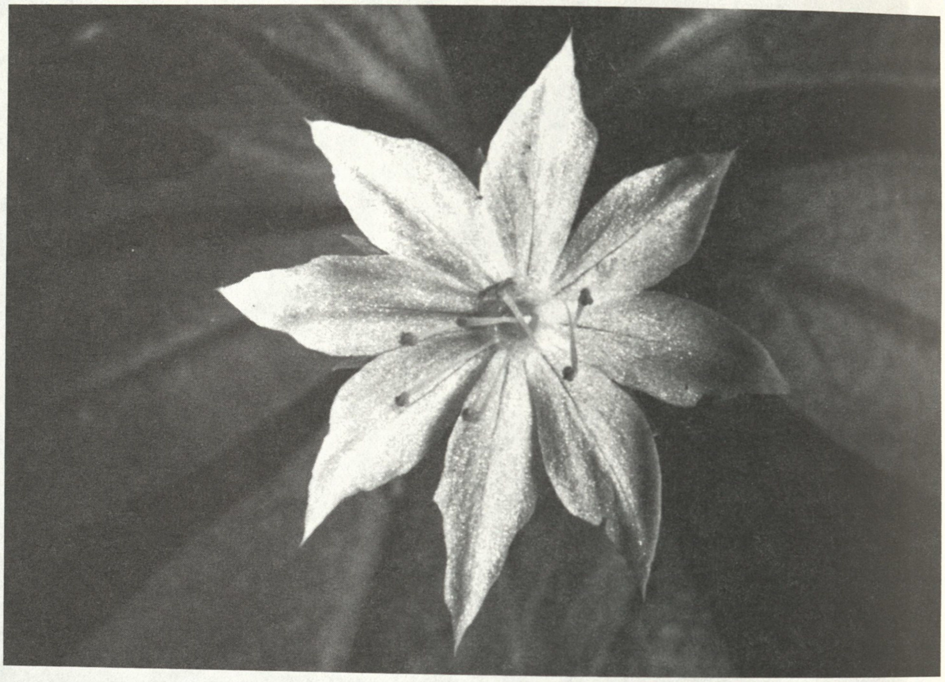
"It's hard to explain. There were so few working women at that time -- women had just gotten the vote," explained Mary. (Women's suffrage took effect in the United States in 1920.) So, thinking that she might have a better chance with more education, Mary went to Cornell, where she received a Master's Degree in wildlife management in 1937. But the M.S. didn't help, and she had to find whatever forest-related work she could, including, in the summers of 1938 and 1940, being curator for the State People's Forest Museum in Connecticut.

While working at the wildflower nursery of U.S. Senator George Aiken of Vermont, she fell in love with the flowers.

Finally, in 1944, Mary found full-time work as a junior forester in Wisconsin. She got the job, she was told, because all the men were serving in

World War II. That position was withdrawn in 1945, because men were returning from the war and needed work. But the state of Wisconsin offered her a job as liaison to women's clubs. Fearing that she would have to style her hair, wear nice clothes, and paint her fingernails, she turned down the job. "One woman asked me how she could garden and keep her fingernails looking nice," said Mary. "My hands are functional, not ornaments," explained Mary to the woman.

So Mary came back to Connecticut. She and Ruth Hardy, a friend, worked as waitresses in fancy restaurants or as winter housekeepers for wealthy people in Florida and "saved every penny." The two women purchased land in Falls Village and created the Ruth Hardy Wildflower and Fern Nursery.

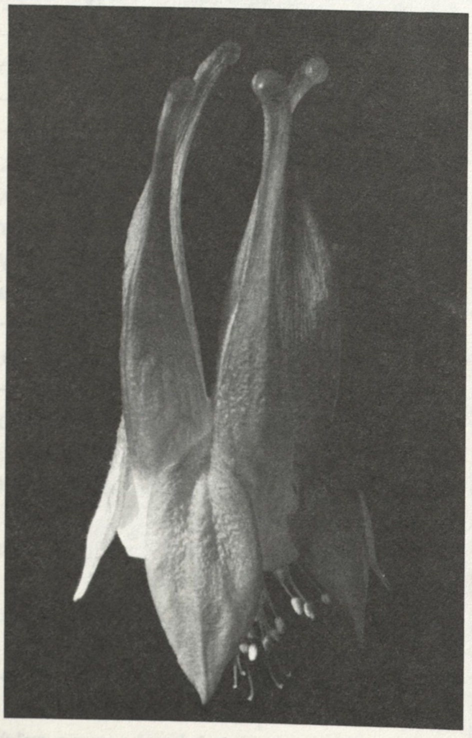


Starflower (Trientalis borealis), *a common plant in Connecticut woodlands.*

BECAUSE of her growing interest in Henry David Thoreau, in 1958 Mary moved to Concord, Massachusetts, where she was active in the Thoreau Society. Believing that the Thoreauvians of the day needed a home base, she founded the Thoreau Lyceum. "I'm supposed to be the nation's authority on Walden," she quips.

In 1968, pursuing the Mount Katahdin aspect of Thoreau's life, she moved her Thoreau Wild Garden nursery to Greenfield, Maine, started the Thoreau Fellowship and the Thoreau Journal Quarterly, and lived in a primitive cabin in the woods. During her 10 years in Maine, she earned the nickname "Wildflower Mary."

"Then when I was 72, I decided not to live in a house for a year, so I got a van and a kayak, went to Canada,



Native columbine (Aquilegia canadensis).

Yellow star grass (Hypoxis hirsuta), *which is not a grass but a member of the amaryllis family.*

and gradually worked my way southward, going through Kentucky and Tennessee, camping out in the woods, till I reached the Everglades," she said. For several winters she worked as a naturalist interpreter in the Everglades National Park.

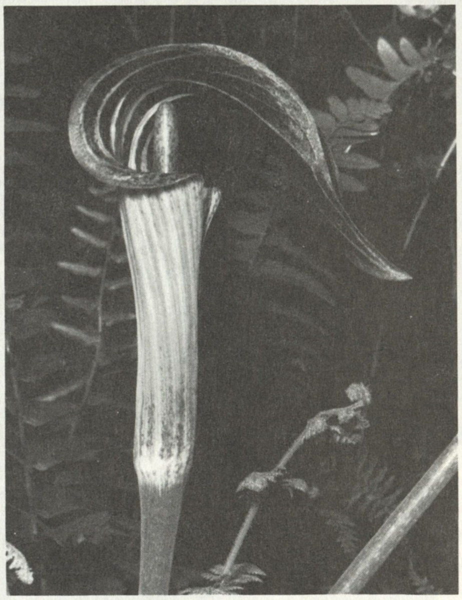
In 1980, the difficulty of living in Maine on a Social Security income caused Mary to relocate to Storrs. In 1980, too, the Commonwealth of Massachusetts asked her to restore the slopes on the north side of Walden Pond, which had been ruined by poor management. That effort took four years.

In 1985, as a natural history volunteer for The Connecticut State Museum of Natural History at UConn, Mary founded the Annual Wildflower Festival. The Wildflower Festival is held every year on the second Sunday of June. This year's Festival is June 10 at UConn.

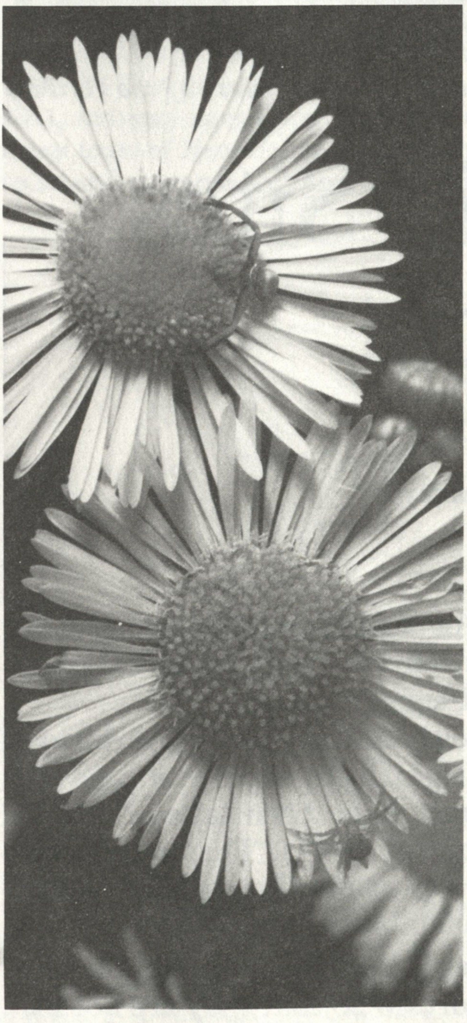
Mary and several others also helped convince the Board of Trustees that The University of Connecticut should establish the Albert E. Moss Forest, Wildflower and Wildlife Sanctuary on 157 acres of University-owned land. On this land during the 1930s, Mary and her classmates under Albert Moss had planted white pines on Washington's Birthday that are now 80 feet tall. The sanctuary was dedicated on April 21, 1990.

Now Mary devotes most of her time to being chairperson of Walden Forever Wild, an international organization working to preserve Walden Pond as a wildlife sanctuary. "Walden is not just part of the American consciousness -- it is part of the world's environmental consciousness," said Mary.

Born on May 1, 1906, Mary says she was a May basket. According to Connecticut tradition, a May basket is a gift of flowers presented to friends on May first. Her work to preserve the environment is, indeed, a gift to all of us in Connecticut and around the world.



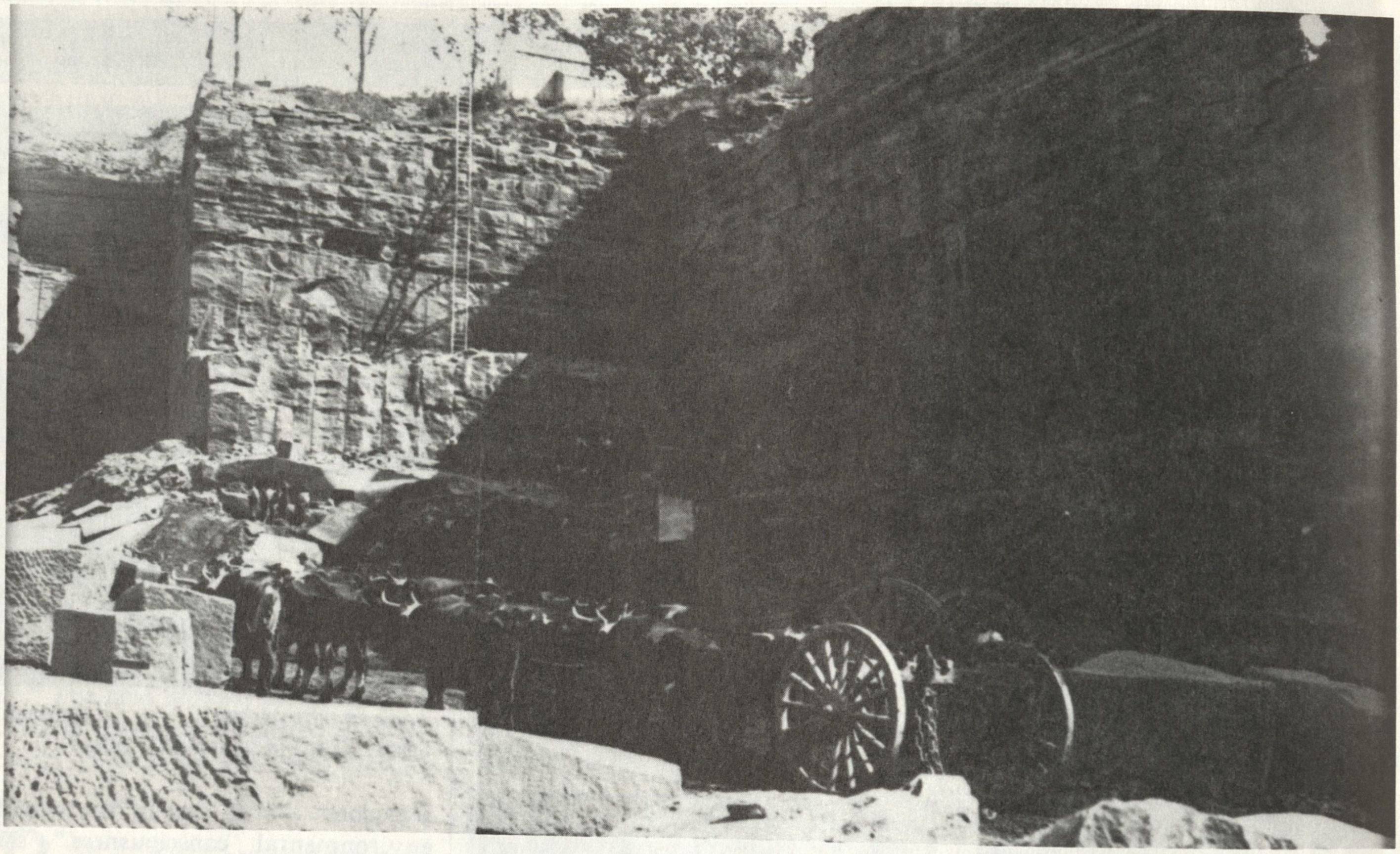
Jack-in-the-pulpit (Arisaema atrorubens), *a woodland plant.*



Crab spiders rest on a common fleabane (Erigeron pulchellus).

Blue false indigo (Baptisia australis), *a cultivated plant which has "escaped" and now grows wild along roadsides.*

This article was contributed by The Connecticut State Museum of Natural History at The University of Connecticut in Storrs, which exhibits mounted birds of Connecticut, the largest mounted white shark on display in the eastern United States, "Videoplace" interactive video, Indian artifacts, and offers programs for teachers, children, and adults. For information, contact the Museum, UConn Box U-23, Storrs, CT 06269-3023; phone (203) 486-4460.■



Scene within the Portland Brownstone Quarries during 1889, Portland, Connecticut. (*Photo courtesy of the Portland Library*)

Historic Geologic Sites in Connecticut

By Robert J. Altamura
Geologist
Connecticut Geological and Natural History Survey
Natural Resources Center, DEP

WITHIN CONNECTICUT'S BOUNDARIES occur a number of significant historic geologic sites. Connecticut has received a considerable amount of attention from geological scientists and the mining industry. Some of these sites have national significance.

The following notes give some information on some of the outstanding geological historic sites in the state. Included is a site name and a description of the significant aspects of each site. Most of the sites are mines or quarries; for those sites, site names have been taken from the publication Bedrock Mines and Quarries of Connecticut (Altamura, 1987). That publication includes a commodity modifier to named mines and quarries -- for example: the Hale Quarry becomes the Hale Pegmatite Quarry, since pegmatite minerals have been sought there.

Geological sites are under constant threat due to development. Perhaps some of the sites below should be identified for preservation and management efforts -- so that they are not lost. One very important site, the old Wolcott Brownstone Quarry in Manchester (described below), was recently destroyed as a result of development. Once these sites are lost, they are lost forever.

Historic geology sites are arranged alphabetically, and do not reflect any particular priority order.

Branchville Pegmatite Quarry, Ridgefield, Connecticut. The Branchville Quarry near the village of Branchville in Ridgefield is a famous source of rare phosphate and pegmatite minerals. It has been used extensively for mineralogical and chemical studies. The site was studied in the late 1800's by George Brush and Edward S. Dana of Yale who reported on the minerals occurring there (Shairier, 1931). A report in the files of the Connecticut Geological and Natural History Survey indicates that this site is a type locality (locality of first discovery in the world) of nine minerals: dickinsonite, eosphorite, eucryptite, fairfieldite, fillowite, lithiophilite, natrophilite, purpurite, reddingite, and triploidite.

The first radiometric age determinations in the world were conducted on minerals from Branchville Quarry and Hale Quarry in Portland (Boltwood, 1907).

Cheshire Barite Mines, Cheshire, Connecticut. Benjamin Silliman was one of this country's most influential scientists. He and his students conducted early studies on barite and the barite deposits of Cheshire (e.g. Shepard, 1832; Figure 1). Silliman is better known for founding the science department at Yale, and also for founding the American Journal of Science. Silliman has been credited with the first identification of barite at Cheshire about 1811, and may have found the deposit during one of his many tours of New Haven county where he studied the rocks and minerals exposed there. From this discovery came the development of the first barite mine in the country, the Jinny Hill Barite Mine, and a significant industry. Mining was conducted from 1838 to 1877 (Fritts, 1990).

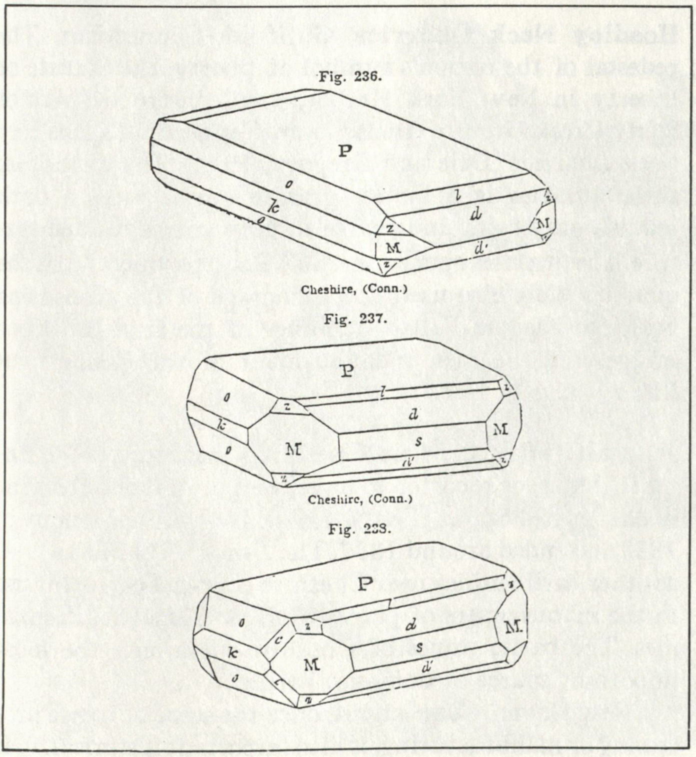


Figure 1. Drawings of Cheshire, Connecticut, barite crystals from C.U. Shepard's 1832 Treatise on Mineralogy, *showing their well-formed nature.*

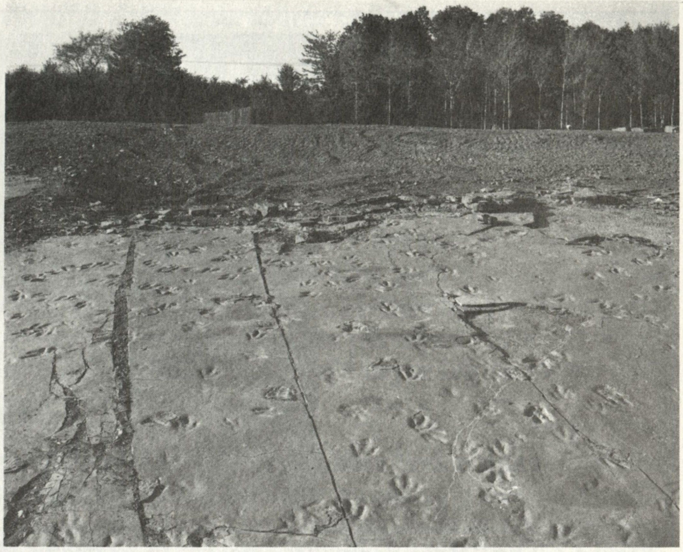


Figure 2. Bedding planes exhibiting dinosaur footprints at Dinosaur State Park, Rocky Hill, Connecticut. Note the density of footprints and their extent. (Photo by John Howard)

Silliman's students are credited with many notable geological achievements. Silliman's students carried their knowledge to other parts of the country. His students conducted pioneering state surveys in North Carolina, Massachusetts, New York, and Connecticut.

Dinosaur State Park, Rocky Hill, Connecticut. At Dinosaur State Park several thousand dinosaur tracks occur over a wide extent (Figure 2). Footprints found at the site include species which are found elsewhere. However, what are interpreted to be swimming tracks have been found, and these are not known to occur elsewhere (Krueger, Park Mgr., pers. comm., 1990). These "swimming tracks" may have been made by the dragging of the animals' toes in a shallow lakeshore bottom. Dinosaur Park today is a very popular education site for natural science. The park is presently designated as a National Natural Landmark by the National Park Service.

The Great Unconformity, Southington, Connecticut. The Great Unconformity is a name given for an exposure of rocks at the western margin of the Central Lowlands near the border of the Western Highlands. In a single exposure, one can observe the contact between highly deformed rocks of Paleozoic age and the overlying essentially nondeformed rocks of Mesozoic age. The boundary between the two formations represents an erosional surface and a hiatus of approximately 200 million years. The geological history of the exposure is quite complex but very clearly exposed for observation on the banks of the Roaring Brook. The site, first described by William Morris

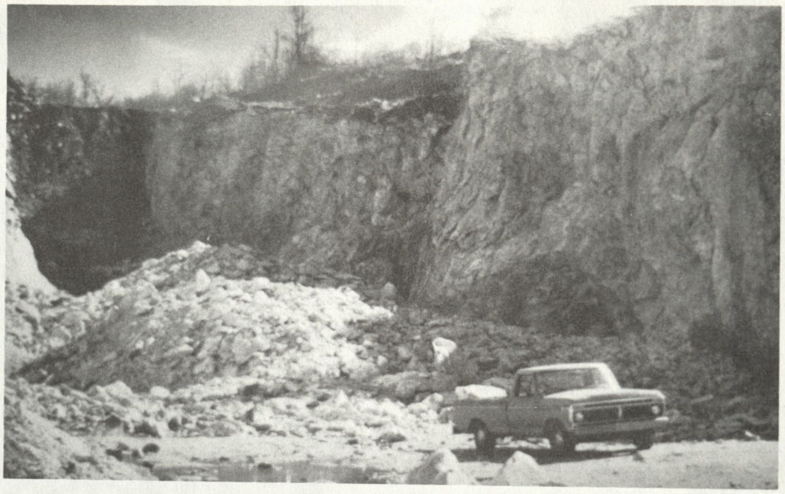


Figure 3. The "Hale Pegmatite Quarry" in Portland, Connecticut, today. One of the first radiometric age dates made in the world was made on uraninite crystals from this site by Bertram Boltwood of Yale in 1906. (*Photo by R.J. Altamura*)

Davis in the late 1800's, exhibits evidence that supports regional plate tectonic theories and helps to explain the development of the rocks that underlie the Central Lowlands. Lowlands with similar geological histories exist at other places along the east coast, but according to Professor de Boer, a geologist at Wesleyan University, this is the best unconformity of this kind along the east coast.

Hale Pegmatite Quarry, Portland, Connecticut. The Hale deposit (Figure 3.) is referred to as a rare-metal pegmatite. One of the first radiometric age dates made in the world was made on uraninite crystals from this site.

In 1891, W.F. Hillebrand, a chemist with the U.S. Geological Survey, studied uraninite form the Hale Quarry (Foye and Lane, 1934) and noticed during the preparation for analysis that a gas was being emitted. Several years later, helium was isolated as a stable decay product of uranium. In 1904, Ernest Rutherford of McGill University presented ideas on how progressive accumulation of daughter products might be used to measure geologic time. Those ideas were put to use by Bertram B. Boltwood of Yale who, in 1906, following a suggestion made by Rutherford, looked at analyses of uranium minerals including Hillebrand's uraninite analyses from the Hale, and made the first radiometric age determinations. The uraninite from this pegmatite was dated as 410 million years old by Boltwood (1907), a date that is considerably older than the generally accepted modern age determination of about 260 million years old. Radiometric age dating indicated that the expanse of geologic time was much greater than geologists previously thought (Altamura, 1988).

Higley Copper Mine, East Granby, Connecticut. Here copper was mined and smelted in part for use as copper coins. The "Higley Coppers" were the first copper coins made in English America that were used for trading purposes. There were five varieties of coins struck, according to one report. Three varieties were undated, a forth marked 1737, and fifth 1739 (Connecticut Historical Commission handout). The coins were designed and made by Dr. Samuel Higley of Simsbury who is also credited as having processed the earliest known steel made in America in 1727 (Harte, 1944). If indeed these were the first or even among the first coins struck in this country, then the mine has significance in having contributed to the national pattern of the U.S. history in terms of encouraging independence from England. The mine is a mile or so south of the Newgate Prison Copper Mine.

Hoadley Neck Quarries, Guilford, Connecticut. The pedestal of the nation's symbol of liberty, the Statute of Liberty in New York Harbor, was constructed out of Stony Creek Granite Gneiss from Connecticut's Hoadley Neck Quarries (Dale and Gregory, 1911). The rock from these quarries is a biotite granite gneiss with a dark reddish-gray color and coarse to very coarse banded texture. The quarries opened in 1867. Rock products from the quarries were also used for anchorage of the suspension bridge at Niagara Falls, anchorage of the first Brooklyn bridge, and the pier and abutment of the Connecticut River bridge in Hartford.

Jinny Hill Barite Mine, Cheshire, Connecticut. The Jinny Hill Mine is reported to have been the first barite mine in the United States (Fritts, 1990). It began operations in 1838 and ended around 1877. The Jinny Hill Mine as well as other barite mines near Cheshire supplied barite for use in the manufacture of paints by New York City companies. The barite mines of Cheshire were once the most important source of domestic barite.

New Haven, Connecticut, once the scene of barite processing or manufacturing, is also important historically. It is reported that the first abrite mill in the country was located near the Farmington Canal on Lock Street, in New Haven (Fritts, 1990). The Jinny Hill Mine and the other

Cheshire barite mines have contributed to and are thus here identified with the beginnings of U.S. mining and manufacturing.

Lantern Hill, North Stonington, Connecticut. Recent work by geologists from the Connecticut Geological and Natural History Survey and Wesleyan University has led to renewed interest in this silicified fault zone (Altamura, 1987; Altamura and de Boer, in preparation). Lantern Hill stands as a resistant knob about 450 feet above sea level. Views to the south, east, and west are spectacular. It is the tallest land form in southeastern Connecticut and had been historically used as a lookout. Recent radiometric age dating indicates that this fault may have originated at the time of the embryonic opening of the Atlantic Ocean. Work is presently under way to confirm this hypothesis, and to better describe the geology of this site. If this hypothesis is verified, the Lantern Hill fault and the related Snake Meadow Brook fault would be the focus of geologic studies related to the opening of the Atlantic and plate tectonics stress changes in the northeastern U.S.

Middletown Pegmatite District (representative examples include the Strickland, Gillette, and Hale quarries), Middletown area, Connecticut.

Beginning in 1825, pegmatite mining in the district has been continuous from 1865 to the present day. This area reportedly was the first site of commercial production of feldspar in New England and New York. Muscovite and quartz are by-products of the processing of the feldspar. Pegmatites in this area were of interest in the 1950s as a potential source of beryl, the ore mineral of berylium which adds resiliency to its alloys. When strategic uses of berylium were identified late in World War II, the U.S. Geological Survey undertook a study of potential sources of the metal included the Middletown Pegmatite District.

Notable gemstone localities are included in the pegmatites of the district. Probably the most notable to collectors is the Strickland Pegmatite Quarry. Another is the Gillette Pegmatite Quarry -- famous for green gem tourmaline which was once sought by a New York city jewelry store. Gems and mineral specimens from these localities are world famous.

Newgate Prison Copper Mine, East Granby, Connecticut. This mine (see Figure 4) probably produced the first copper ore in the American colonies (Allen and Cornwall, 1954). So far as is known, the first mining company charter granted in this country was for this mine (Harte, 1944).

This site is of general historical interest also. It was used as a prison during Colonial days. At one time prisoners were required to excavate the copper ore. The practice ended when prisoners would make escape tunnels. The mine and prison are now a museum.

(This is the first installment of a two-part article on historic geologic sites in Connecticut. The second and concluding installment will appear in the July/August issue of Connecticut Environment. References for citations in this installment will appear in that issue.) ■

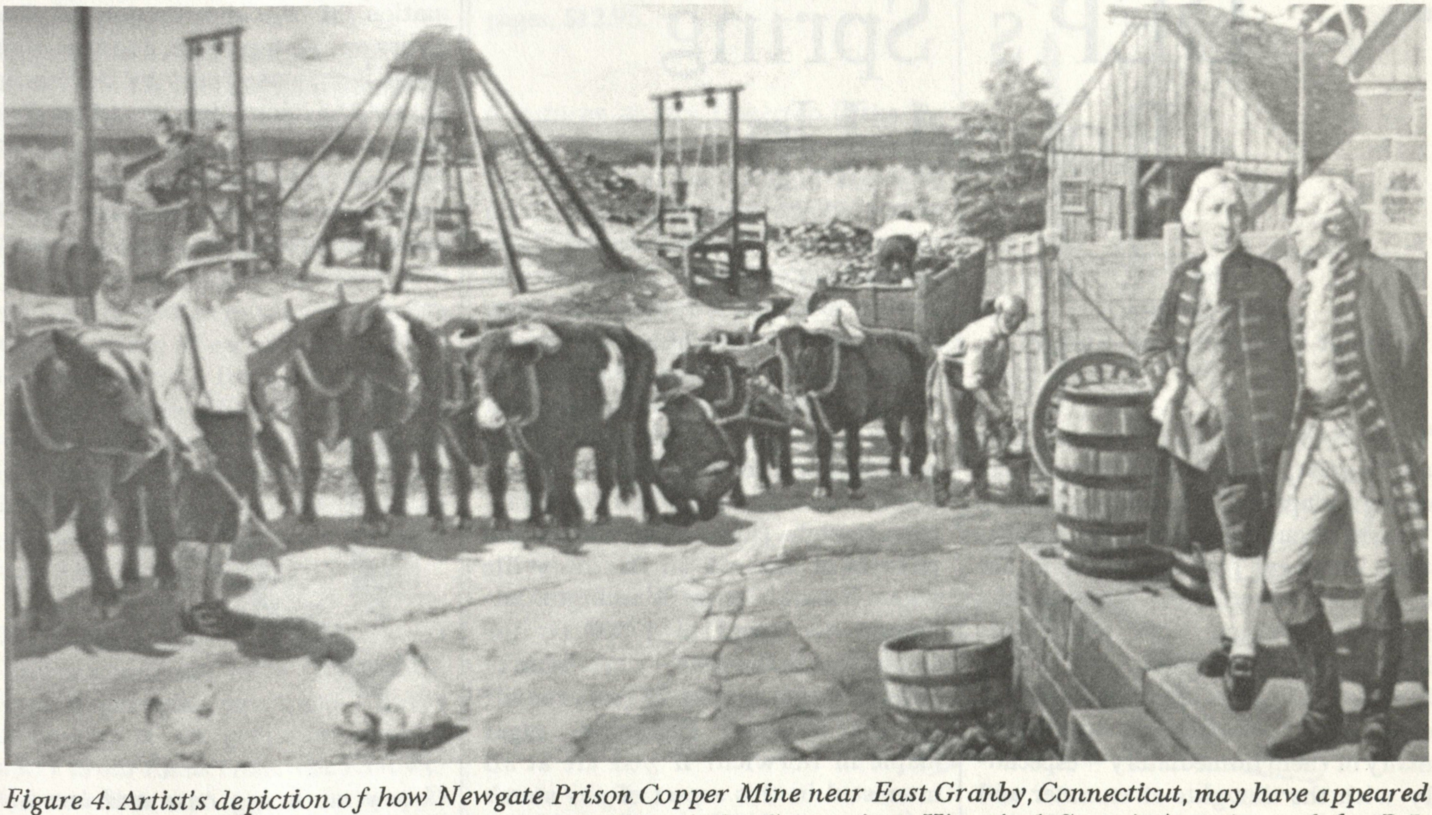
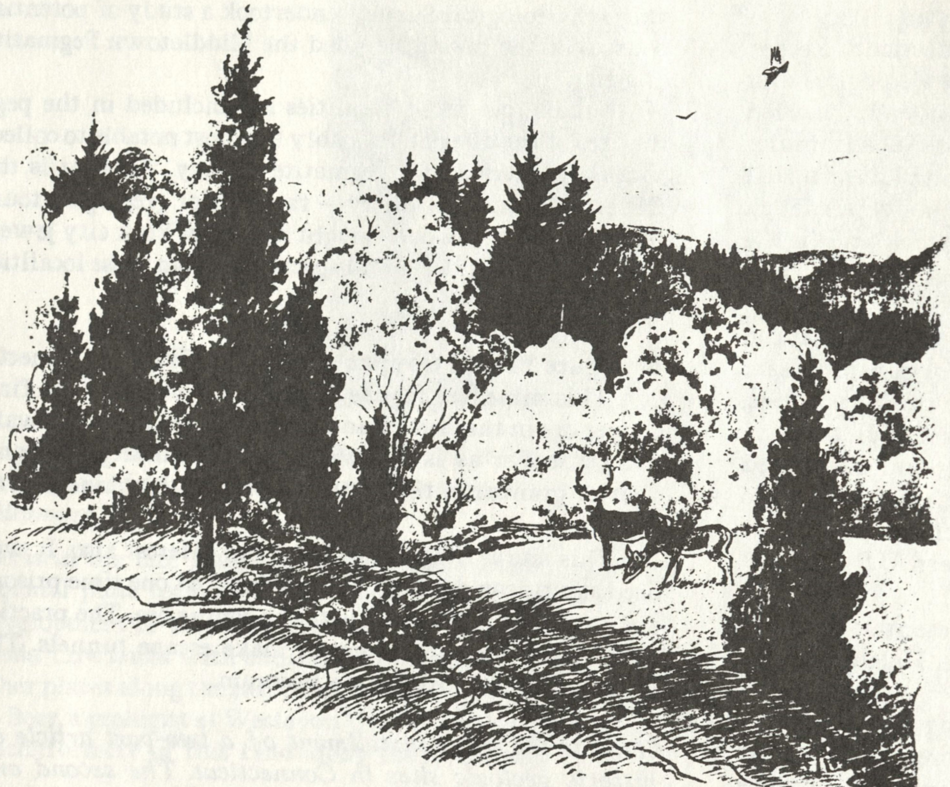


Figure 4. Artist's depiction of how Newgate Prison Copper Mine near East Granby, Connecticut, may have appeared in Colonial days. (Reproduced with the permission of the Connecticut Historical Commission: Artwork by D.R. Wagner)

Map of the Month



(*Drawing from* Yale Natural Preserve, New Haven)

DEP's Spring Round-Up

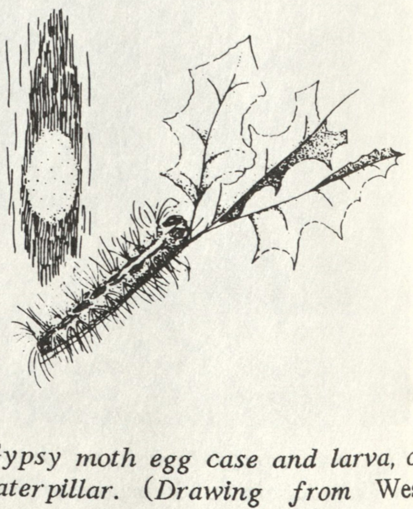
by
Alan Levere
Senior Environmental Analyst

THINGS GO IN CYCLES. Not too long ago I was wondering if there were enough maps and publications to keep writing about. Sometimes our acquisitions and new in-print items do not quite keep up with the demands of a monthly deadline. Now, gladly, we have cycled around. (Recycled?) There is such a bounty of exciting things to offer that it seems best to feature many of them immediately -- especially with the thoughts of summer and outdoors becoming a wonderful reality.

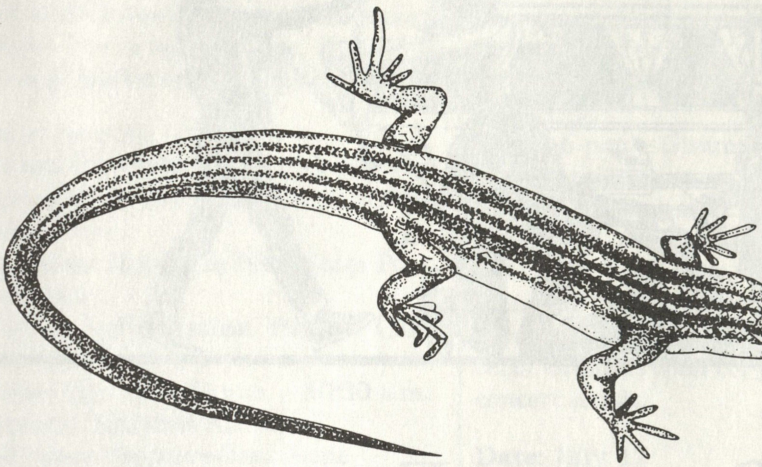
Connecticut's Notable Trees features stories, locations, pictures, and measurements of the biggest, rarest and widest trees in our state. There are too many excellent points to list, but surely enough to delight every would-be arborist and tree aficionado. I can't resist throwing in a few grabbers, though. How about stories and pictures of the oak in Gaylordsville where General George Washington addressed his troops in 1780? Or the largest tree in the state -- a sycamore in Simsbury that is over 25 feet around? Or the National Champion sugar maple in Norwich? If you are at all interested in this aspect of our state's heritage, this book is a "must." Authored by the Connecticut Botanical Society, this 93-page, soft cover, black and white edition is available for $5.50.

There is a series of three guides entitled *The Vegetation of Connecticut Natural Areas.* William Niering and Frank Egler put them together in the mid- and late-'60s. Each of the 22- to 36-page guides includes discussion of the history of vegetation and the resulting vegetational patterns on slope crests, mid slopes and wetland areas. Generally they include maps, charts and photos. The three titles are: the Yale Natural Reserve, New Haven; the Natural Area of the Audubon Center of Greenwich; and the Natural Areas of the McLean Game Refuge. The guides are $1.00 each.

West Rock to the Barndoor Hills: The Traprock Ridges of Connecticut is about our state's traprock ridges which extend the length of our Central Valley. Elevations along the ridge range from 300 to 1,500 feet above the valley floor. The author's excellent explanation of the distribution of flora types on the top, slope, and base of the ridge is surpassed only by the description of the microclimates and resulting microhabitats (like the constantly cool talus slopes). Descriptions of the several towers that top the ridge and the quarrying activity that has taken



Gypsy moth egg case and larva, or caterpillar. (*Drawing from* West Rock to the Barndoor Hills.)



Five-lined skink (Eumeces fasciatus). (*Drawings from* West Rock to the Barndoor Hills.)

place there over the years complete the story. In all, this 60-page book with over a dozen photos is just about guaranteed to teach you something new. $5.00.

Born Among the Hills: The Sleeping Giant Story embodies the legend, fiction, and facts that make up a portion of the traprock ridge known as the Sleeping Giant. The formation gets its name from its profile. It is complete with stories of resort-era days when the ridge was farmed, when estates arose at the foothills, and of the fight to keep the Giant from being quarried into crushed stone. You will find plenty of places to explore. Remains of a pathway of 350 steps carved into the rock and traces of an ox road built to haul materials up for a summer cottage (right on the Giant's chin) await your scrutiny. Even the Giant's Axle Shop Pond has its own story. A great little book that gives a lot of background to one of Connecticut's treasured state parks. 47 pages, $4.00.

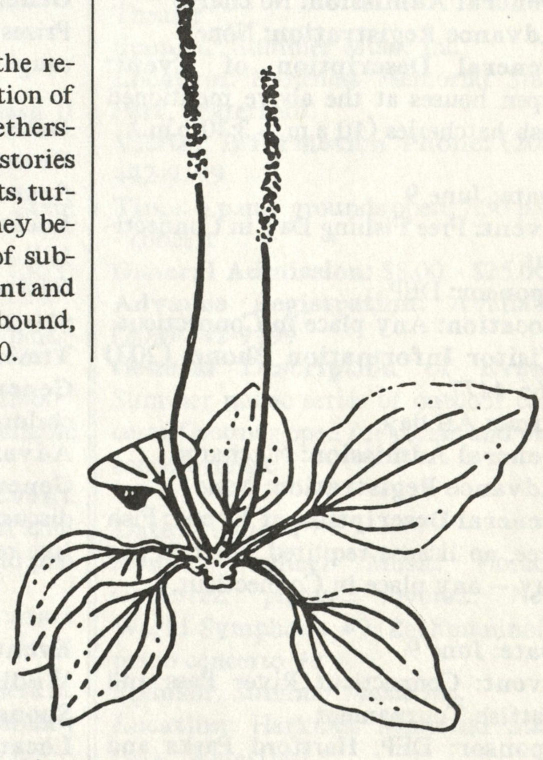
Diagnosing Injury to Eastern Forest Trees is one of our most recent additions. It provides assistance for the recognition of air pollutant-induced injury to our forest trees. The first section describes and photo documents these effects. The second section was set up to assist in the recognition (through text and photos) of other major diseases, insects, and abiotic stresses that may affect trees. These disorders were selected because of their similarity to those caused by air pollution. The two sections combine to form a fine comparison and highly instructional text about today's forest injuries. Full color, over 220 photos, 122 pages, $12.95.

Creatures At My Doorstep is the result of years of at-home observation of the wildlife at one home in Wethersfield. Page after page yields stories about 'possums, deer, mice, rabbits, turtles, muskrats, and more; and they become the subjects of this book of suburban nature. Something different and surprisingly homey. Spiral bound, black and white, 52 pages, $8.00.

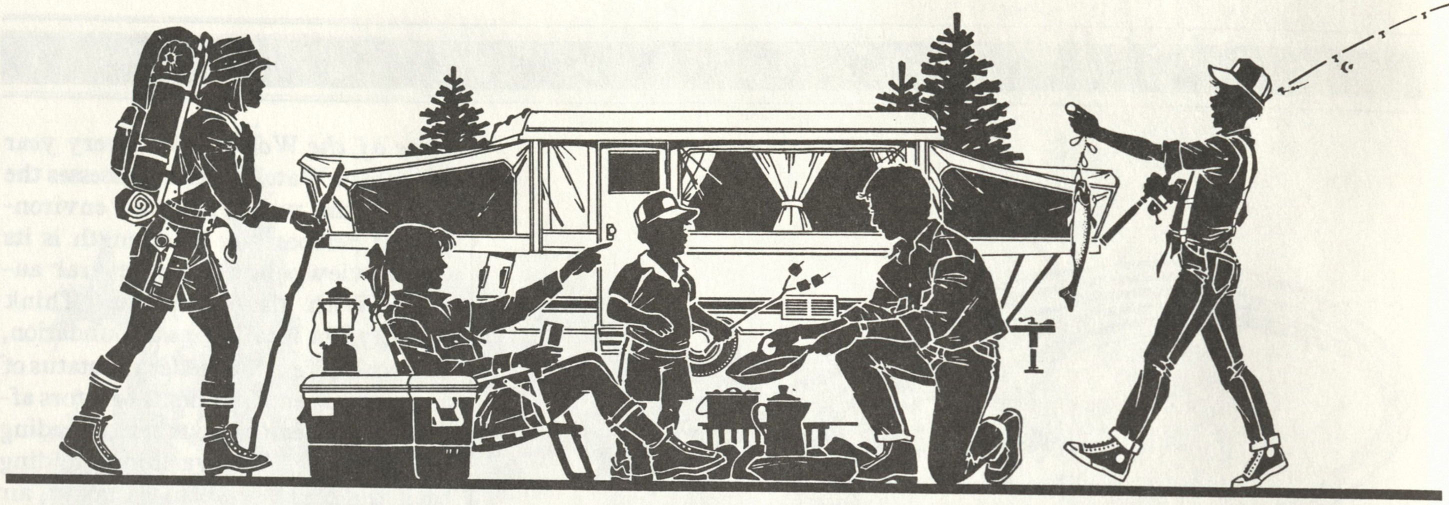
State of the World 1990. Every year the World Watch Institute assesses the state of the world from an environmental perspective. Its strength is its varied viewpoints from several authors. With the statement, "Think globally, act locally," as a foundation, this book offers the reader the status of a variety of environmental factors affecting the health of our earth. Feeding the world, global warming, holding back the sea, a peaceful economy, air and our health, and suitable future transportation are among the principal subjects. We are glad to have this book available for the first time. It will definitely broaden your environmental horizons. 253 pages, $7.50.

There you have it. The first ever spring roundup of valuable and enjoyable information to help you appreciate what Connecticut, nature and the world have to offer.

To order, please include eight percent tax and $2.00 handling. Send to: DEP-NRC, Map Sales, Room 555, 165 Capitol Avenue, Hartford, CT 06106. ■



Common plantain (Plantain major) *was sometimes called "white man's footstep" by Native Americans because it thrived in disturbed, cleared areas.*



Outdoor Summer Fun in Connecticut

Date: June 3-9
Event: National Fishing Week
Sponsor: DEP
Location: Quinebaug Valley and Burlington Fish Hatcheries
Visitor Information Phone: (203) 564-7542, (203) 673-2340
Time: 10 a.m. - 3:30 p.m.
General Admission: No charge
Advance Registration: None
General Description of Event: Open houses at the above mentioned fish hatcheries (10 a.m. - 3:30 p.m.)

Date: June 9
Event: Free Fishing Day in Connecticut
Sponsor: DEP
Location: Any place in Connecticut
Visitor Information Phone: (203) 566-4477
Time: All day
General Admission: No charge
Advance Registration: None
General Description of Event: Fish free, no license required, for this one day -- any place in Connecticut.

Date: June 9
Event: Connecticut River Bass and Catfish Tournament
Sponsor: DEP, Hartford Parks and Recreation, Central Connecticut Bassmasters, Somethings Fishy Tackle Shop
Location: Riverside Park (Hartford) Boat Launch
Visitor Information Phone: (203) 293-0131
Time: 5 a.m. - 3 p.m.
General Admission: No charge
Advance Registration: None
General Description of Event: Prizes for bass and largest catfish caught. Learn-to-fish clinics.

Date: June 9
Event: Connecticut Reptiles
Sponsor: Dinosaur State Park
Location: Dinosaur State Park, Rocky Hill
Visitor Information Phone: (203) 529-8423
Time: 1 p.m.
General Admission: Adults: $1.00; children $.50
Advance Registration: None
General Description of Event: A discussion and walk on the park trails, live reptiles on exhibit.

Date: June 16
Event: Creating Backyard Habitat for Wildlife
Sponsor: Dinosaur State Park
Location: Dinosaur State Park, Rocky Hill
Visitor Information Phone: (203) 529-8423
Time: 1 p.m.
General Admission: Adults: $1.00; children $.50
Advance Registration: None
General Description of Event: Discussion and demonstration of creating habitat areas for local wildlife.

Date: June 23
Event: Summer Wildflowers
Sponsor: Dinosaur State Park
Location: Dinosaur State Park, Rocky Hill
Visitor Information Phone: (203) 529-8423
Time: 10 a.m. and 1 p.m.
General Admission: Adults: $1.00; children $.50
Advance Registration: None
General Description of Event: A slide presentation and guided walk through the park grounds.

Date: June 23-24
Event: Strawberry Moon Powwow
Sponsor: Connecticut River Powwow Society, Inc.
Location: Ferry Park, Route 160, Rocky Hill
Visitor Information Phone: (203) 684-5407, (203) 487-0036
Time: 10 a.m. - 6 p.m.
General Admission: Adults: $4.00;

children $2.50; senior citizens $3.00
Advance Registration: None
General Description of Event: New England's largest gathering of Indian people. Dance competition, live birds of prey, native crafts, demonstrations.

Date: June 24
Event: The Great Pachaug Canoe Race
Sponsor: Connecticut Canoe Racing Association
Location: Hopeville Pond State Park, Griswold
Visitor Information Phone: (203) 228-9114
Time: Sign up 9:30 a.m. - 10:30 a.m.
General Admission: None
Advance Registration: None
Entry fee: $6.00 per paddler
General Description of Event: Race starts at 11 a.m. Six miles for novices or recreational canoeists; eight miles for racers.

Date: July 1
Event: Mansfield Hollow Marathon Flatwater Canoe Championship
Sponsor: Columbia Canoe Club
Location: Mansfield Hollow State Park Boat Launch, Mansfield
Visitor Information Phone: (203) 456-0558
Time: 8:30 a.m.
General Admission: None
Advance Registration: 8:30 a.m.
Particiapnts fee: $6.00 per paddler
General Description of Event: Five mile course for novices and local recreational canoeists, afternoon war canoe challenge.

Date: July 7
Event: Fireworks Extravaganza
Sponsor: Towns of Groton and New London
Location: Fort Griswold Historic Park, Groton
Visitor Information Phone: (203) 536-2669
Time: 6 p.m. - 9 p.m.
General Admission: None
Advance Registration: None
General Description of Event: Band and musical entertainment; the biggest fireworks display in New England, by the Grucci family.

Date: July 14
Event: Summer Music: Six Brandenburg Concerti of Bach with Jean-Pierre Rampal
Sponsor: Summer Music, Inc.
Location: Harkness Memorial State Park, Waterford
Visitor Information Phone: (203) 442-9199
Time: 6 p.m. - Grounds open; 8 p.m. - concert
General Admission: $8.00 - $25.00
Advance Registration: Available (203) 442-9199
General Description of Event: Summer music series of outdoor concerts. Grounds open for picnic and pre-concert music.

Date: July 17
Event: Summer Music: Chick Corea Acoustic Band
Sponsor: Summer Music, Inc.
Location: Harkness Memorial State Park, Waterford
Visitor Information Phone: (203) 442-9199
Time: 6 p.m. - Grounds open; 8 p.m. - concert
General Admission: $8.00 - $25.00
Advance Registration: Available (203) 442-9199
General Description of Event: Summer music series of outdoor concerts. Grounds open for picnic and pre-concert music.

Date: July 21
Event: Summer Music: Brass Bash II Featuring the Empire Brass
Sponsor: Summer Music, Inc.
Location: Harkness Memorial State Park, Waterford
Visitor Information Phone: (203) 442-9199
Time: 6 p.m. - Grounds open; 8 p.m. - concert
General Admission: $8.00 - $25.00
Advance Registration: Available (203) 442-9199
General Description of Event: Summer music series of outdoor concerts. Grounds open for picnic and pre-concert music.

Date: July 28, 1990
Event: Summer Music: Peter Serkin, piano; Beethoven; Choral Fantasy Symphony #3; piano concerto #2.
Sponsor: Summer Music, Inc.
Location: Harkness Memorial State Park, Waterford
Visitor Information Phone: (203) 442-9199
Time: 6 p.m. - Grounds open; 8 p.m. - concert
General Admission: Adults: varies $8.00 - $25.00
Advance Registration: Available (203) 442-9199
General Description of Event: Summer music series of outdoor concerts. Grounds open for picnic and pre-concert music.

Date: July 29
Event: Mansfield Sprints Canoe Races
Sponsor: Columbia Canoe Club
Location: Mansfield Hollow State Park
Visitor Information Phone: (203) 456-0558, (203) 228-9114
Time: 10 a.m. races start, 8:30 a.m. registration
General Admission: None
Advance Registration: For canoeists - Adults: $10.00; children $5.00
General Description of Event: A full day of canoe races for adults and children.

Date: August 1
Event: Summer Music: Mozart Family concert with Hudson Vagabond Theater
Sponsor: Summer Music Inc.
Location: Harkness Memorial State Park, Waterford
Visitor Information Phone: (203) 442-9199
Time: 6 p.m. - grounds open; 7:30 p.m. - concert
General Admission: $8.00 - $25.00
Advance Registration: Available (203) 442-9199
General Description of Event: Summer music series of outdoor concerts. Grounds open for picnic and pre-concert music

Date: August 4
Event: Summer Music: Horacio Gutierrez, pianist; Dvorak, New World Symphony #9; Rachmaninoff, piano concerto #2
Sponsor: Summer Music Inc.
Location: Harkness Memorial State Park, Waterford
Visitor Information Phone: (203) 442-9199

Time: 6 p.m. - grounds open; 8 p.m. - concert
General Admission: $8.00 - $25.00
Advance Registration: Available (203) 442-9199
General Description of Event: Summer music series of outdoor concerts. Grounds open for picnic and pre-concert music.

Date: August 4
Event: Late Summer Wildflowers
Sponsor: Dinosaur State Park
Location: Dinosaur State Park, Rocky Hill
Visitor Information Phone: (203) 529-8423
Time: 10 a.m. and 1 p.m.
General Admission: Adults: $1.00; children $.50
Advance Registration: None
General Description of Event: A slide presentation and guided walk.

Date: August 4
Event: 16th Annual Connecticut River Raft Race
Sponsor: Connecticut River Raft Race, Inc
Location: Hurd State Park (East Hampton) to Haddam Meadows State Park (Haddam)
Visitor Information Phone: (203) 458-6025
Time: 10:30 a.m. - 5:30 p.m.
General Admission: Call for info.
Advance Registration: Is necessary!
General Description of Event: The largest, oldest self-supporting raft race in America. Over 100 rafts and 3,000 participants. Music, ceremonies, refreshments available at race fish.

Date: August 11
Event: Summer Music: Christopher Parkening, Guitarist; "Nights in the Gardens of Spain"
Sponsor: Summer Music Inc.
Location: Harkness Memorial State Park, Waterford
Visitor Information Phone: (203) 442-9199
Time: 6 p.m. - grounds open; 7:30 p.m. - concert
General Admission: Adults: varies $8.00 - $25.00
Advance Registration: Available (203) 442-9199
General Description of Event: Summer music series of outdoor concerts. Grounds open for picnic and pre-concert music.

Date: August 17, 18, 19
Event: Quinnehtukqut Rendezvous and Native American Festival 1990
Sponsor: The Spirit of Quinnehtukqut, Inc
Location: Haddam Meadows State Park, Haddam
Visitor Information Phone: (203) 282-1404
Time: August 17, noon - 7 p.m.; August 18-19, 9 a.m. - 6 p.m.
General Admission: Adults: $5.00; children 6-12 $3.00; senior citizens $3.00
Advance Registration: None
General Description of Event: A weekend that combines a black powder muster and demonstrations of 17th through 19th century American life, Indians in tribal regalia in dance and drumming competition. Arts crafts and food.

Date: August 18
Event: Summer Music: Summer Pops' John Klibonoff, pianist: Gershwin concerto in F.
Sponsor: Summer Music, Inc.
Location: Harkness Memorial State Park, Waterford
Visitor Information Phone: (203) 442-9199
Time: 6 p.m. - grounds open; 8:00 p.m. - concert
General Admission: $8.00 - $25.00
Advance Registration: Available (203) 442-9199
General Description of Event: Summer music series of outdoor concerts. Grounds open for picnic and pre-concert music.

Date: August 18-19
Event: Mohegan Homecoming and Powwow
Sponsor: Connecticut River Powwow Society, Inc.
Location: Fort Shantok State Park, Rte. 32, Montville
Visitor Information Phone: (203) 684-5407, (203) 487-0036
Time: 10 a.m. - 6 p.m.
General Admission: Adults: $4.00; children $2.50; senior citizens $3.00
Advance Registration: none
General Description of Event: New England's largest gathering of Indian people. Dance competition, live birds of prey, native crafts, demonstrations.

Date: August 24, 25, and 26
Event: 6th Annual Connecticut River Powwow and Rendezvous
Sponsor: Connecticut River Powwow Society, Inc.
Location: YMCA Camp, Southington
Visitor Information Phone: (203) 684-5407, (203) 487-0036
Time: August 24, 12 noon - 6 p.m.; August 25, 26, 10 a.m. - 6 p.m.
General Admission: Adults: $4.00; children $2.50; senior citizens $3.00
Advance Registration: None
General Description of Event: New England's largest gathering of Indian people. Native arts and crafts, demonstrations, etc.

Date: September 1-2
Event: Weekend Encampment - In honor of the 20th anniversary of the Battle of Groton Heights
Sponsor: The Second Connecticut Regiment
Location: Fort Griswold Historic Park, Groton
Visitor Information Phone: (203) 445-1729, (203) 889-6275
Time: September 1 - 10 a.m. - 6 p.m, September 2 - 10 a.m. - 5 p.m.
General Admission: None
Advance Registration: None
General Description of Event: Demonstrations of revolutionary war camp life and battle re-enactments.

Date: September 29-30
Event: 'Patriot's Weekend,' Revolutionary War Encampment and Reenactment
Sponsor: Sheldon's Horse and the 2nd Continental Light Dragoons
Location: Putnam Memorial State Park, Redding/Bethel
Visitor Information Phone: (203) 938-2285
Time: 11 a.m. - 4 p.m.
General Admission: None
Advance Registration: None
General Description of Event: Regiments from all over the east in authentic Revolutionary drills, artillery demonstrations and cavalry demonstrations, battle reenactments and parades. ■

Trailside Botanizer

The Snapdragon Family

by
Gale W. Carter

THE SNAPDRAGON or figwort family (*Scrophulariaceae*) represents a very large plant family with most of the family consisting of herbs. There are a few shrubs and the occasional tree. The princess tree (*Paulownia tomentosa*) is one of the tree species in the Northeast that belongs to this family.

Many figworts resemble snapdragons, but others do not. They are a group cherished for their great beauty, frequently appearing in formal gardens and as greenhouse flowers. These include digitalis, beardtongue, the speedwells and, of course, the snapdragons. There are many handsome wild representatives of this family. Some, like mullein and butter-and-eggs, or toadflax, have escaped from cultivation and have proliferated.

There is also an array of smaller figworts that are intriguing, such as clammy hedge-hyssop (*Gratiola neglecta*) and golden hedge-hyssop (*Gratiola aurea*). Because they are found in wet sites and due to their small size, they may be overlooked; however, they too possess attractive flowers well worth observing.

General Characteristics

1) Leaves may be alternate, opposite or whorled, lower leaves usually opposite or whorled.
2) Calyx mostly with five sepals, more or less united.
3) Corolla often an enlarged tube that flares outward becoming two-lipped; the upper lip with two lobes and the lower with three lobes. However, some figworts may have petals that may appear almost regular (radially symmetrical).
4) Two-chambered, superior ovary (all flower parts attached at base of ovary).
5) A single style that may be forked at the tip.
6) The number of stamens is usually four, but some species have two or five. There may be one or two sterile stamens.
7) Flowers often in spikes or in spike-like racemes.
8) The fruit is usually a two-chambered capsule with many seeds. Sometimes a berry.

COMMON SPEEDWELL (*Veronica officinalis*), because of its growth habit and small size, can easily be overlooked; however, there is much about this diminutive species that is appealing.

It is a somewhat hairy, low growing plant that often forms in mats. The stem may trail up to 10 inches before becoming erect.

The egg-shaped leaves are short-stemmed and toothed. Its calyx is cup-shaped and four-toothed while the corolla is saucer-shaped and only about 1/4 inch wide. Four petals are present that are nearly equal but the lowest one is smaller than the others. It is pale lavender with stripes of blue or violet. The flower appears in spike-like clusters. Blossoming time is from May to June. The fruit is a very distinctive small, heart-shaped capsule.

Common speedwell appears on lawns, in pastures, dry fields and waste places.

It is thought that the genus name comes from *vera*, "true," and the Greek *eicon*, "image," and is connected with an early Christian legend. Before St. Veronica became canonized, it was believed that she observed Christ on his way to Calvary, and feeling sorry for him, she offered him her handkerchief to wipe his face. The true image of his face was believed to be imprinted on the handkerchief. Special healing qualities were later transferred to the plant.

The species name means "of the shops," referring to apothecary shops and the medical virtues of the plant. Its common name, speedwell, has various interpretations. Some think it was because of the plant's ability to spread over the ground quickly, while others believed its lavender flowers were to wish the traveler "good speed."

Common speedwell was once considered valuable as an expectorant for respiratory ailments and as a diuretic. It is still considered an herb for the treatment of skin disorders and as a substitute for tea in herb drinks.

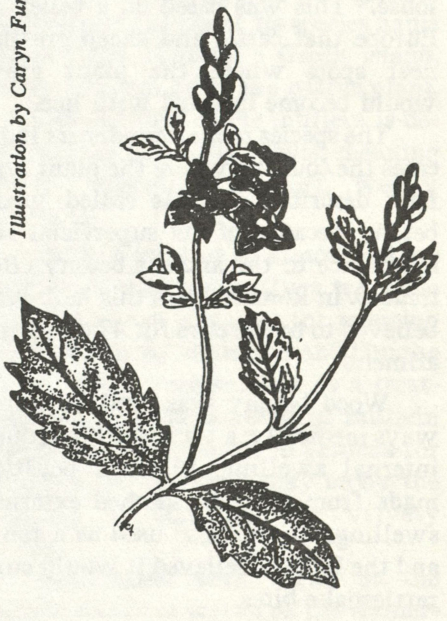


Illustration by Caryn Furbush

Common Speedwell
(Veronica officinalis)

WOOD BETONY or lousewort (*Pedicularis canadensis*) is a hairy plant that has rather stout, usually unbranched stems that tend to grow in clusters. Its height varies from six to 18 inches.

There are numerous basal leaves that are deeply cut, appearing fern-like, while the upper leaves are scattered, alternate and less deeply cut.

The calyx is light green, hairy and all in one piece with the exception of an opening in front. The corolla is about 3/4 inch wide and is tubular, enlarging into two lips. The upper, two-lobed lip is arched and two-toothed, whereas the lower lip is three-lobed. There are four stamens protected by the arch of the upper lip and one pistil.

The flower is various combinations of red-green and yellow. The flower cluster is a dense spike that elongates during the blooming season from April to June. The fruit is a flattened lance-shaped capsule that is slightly beaked. It has a slit-like opening at the top. Wood betony grows in wet meadows, in thickets and open woods.

The genus and common name come from *pediculus* meaning "a louse." This was based on a belief in Europe that cattle and sheep grazing near spots where the plant grew would become infested with lice.

The species name *canadensis* indicates the country where the plant was first described. It was called wood betony because of its superficial resemblance to the ancient betony (*Betonica*). In Roman times this herb was believed to be the cure for 47 different ailments.

Wood betony was used in many ways medically; a tea helped to reduce internal swelling, while a poultice made from the root soothed external swellings. It was also used as a tonic and the Indians believed it would cure rattlesnake bites.

Like many other figworts, it is somewhat parasitic on the roots of other plants, particularly grasses.

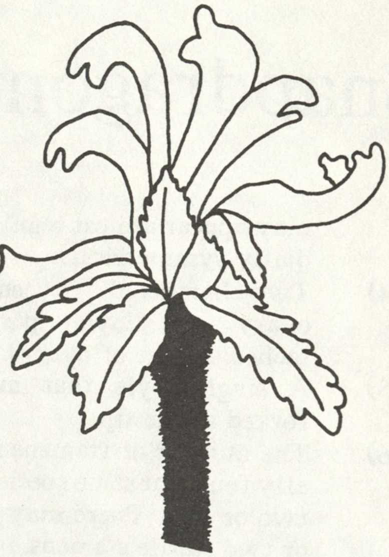


Illustration by Rosemary Gutbrod

Lousewort
(Pedicularis canadensis)

PURPLE GERARDIA (*Gerdia purpurea*) is a plant of delicate beauty with its usually branched, smooth slender stem. It varies in height from one to four feet.

The leaves are narrow, toothless and opposite with the upper leaves reduced to bracts that appear just below the flower. Its calyx is cup-shaped with five sharp teeth equally spaced along its rim. The downy corolla is somewhat tubular at its base, spreading out at the top into five fused petals that appear nearly but not quite regular. The color of the corolla is pink to purple, often with dark spots inside. There are four hairy stamens that have golden yellow anthers. There is one pistil.

The flowers are supported by slender stalks that arise from the leaf axils. Individual flowers vary considerably in size, but are usually about one inch wide. The flower cluster (raceme) contains from six to 14 flowers. Blossoming time is from July to September. The fruit is a round capsule.

Look for purple gerardia on damp sites such as bogs and wet sandy shores (usually where the soil is acid).

The genus name is in honor of John Gerard, the famous English herbalist (1545-1612). He is best known for his monumental work *The Herbal*. This was one of the first botanical works to be written in English. This genus has been renamed *Agalinis*, which is preferred by some botanists. It comes from two Greek words meaning "wonder flax." The species name, *purpurea*, denotes the purple color of the flower.

Gerardia is one of a number of figworts that is at least somewhat parasitic. It is able to photosynthesize to make its own food, but some of its roots have suckers at their tips. This makes it possible for them to attach to other plants and get additional nourishment.

FOXGLOVE beardtongue (*Penstemon digitalis*) has a rather stout flower stem which arises from a rosette of basal leaves. It is smooth and shiny, often purplish, and reaches a height of two to five feet.

The leaves are opposite, toothed and lance-shaped with acute tips. They are stalkless, clasping the stem at the base. The calyx consists of five to eight sepals that overlap.

The corolla is tubular with a narrow base, but becomes enlarged toward the center and expands outward into five lobes which form two lips. The upper lip is two-lobed while the lower lip is spread out more to form three lobes. The flower color is white but there may be the presence of purple line on the inner portion. There may be glandular hairs that cover parts of the flower cluster which develops from the axils of the upper leaves. The flowers arise in pairs and are stalked.

There are four anther-bearing stamens and one sterile stamen without an anther. This is usually bearded or hairy. There is a single pistil. Blossoming time is from May to July. The fruit is a capsule.

This species of beardtongue is found along roadsides and in woodlands, fields and meadows.

Penstemon, the genus name, is from two Greek words which mean "five stamens." In the beardtongue, one is always sterile. The species name, *digitalis*, is Latin for "in the form of fingers." The shape of the corolla was thought to resemble the flower of the true foxglove (*Digitalis sp.*) which is fingerlike.

The common name beardtongue refers to the hairy sterile stamen which early botanists considered unusual.

According to Klimas in his book *Wildflowers of Eastern America*, the American Indians made considerable use of beardtongue. They made a syrup from the flowers that they believed was helpful in treating their children for whooping cough, and brewed a tea from the leaves which they used as a laxative. Some Indians believed that a dressing made from the leaves was a sure-fire treatment for rattlesnake bite.

CULVER'S ROOT (*Veronicastrum virginicum*) is a very tall, unbranched species that grows from three to seven feet high. It has a nearly smooth stem that develops from a blackish, horizontal rootstalk or rhizome.

The upper leaves are in whorls varying from three to nine, while the lower leaves are opposite. They are three to six inches long, finely or sharply cut and are on stalks.

The calyx is shaped like a cup and is four to five parted, with a rim which is four to five toothed. Its corolla is a tapering tube that is four to five lobed from which two stamens and a single style projects. The flower is nearly regular and is usually white, but can be pink, blue or purple. Flowers are numerous on very short stalks forming a dense spike-like raceme that may be as much as nine inches long. Blooming time is June to September. The fruit is a narrow egg-shaped capsule with four short slits at the top.

© copyright 1990, Gale W. Carter.

Culver's root is a plant of rich moist woods, thickets and meadows. The generic name *Veronicastrum* is a combination of two words; *veronica* because it resembles the speedwells (*Veronica sp.*) and *astrum*, "a star," a reference to the arrangement of its leaves.

Virginicum indicates the state where the species was first described. The origin of the common name, Culver's root, is obscure.

Culver's root was used medically for many ailments. The early settlers learned many of the remedies from the Indians who used the plant both medically and for ritualistic purposes.

The root has strong emetic and cathartic properties. When used as a laxative it was in small doses, and the root was boiled in milk. There was danger in using the fresh root. Small amounts of the root were also valuable for curbing diarrhea, soothing dyspepsia, for increasing the flow of bile and for generally increasing the muscle tone of the digestive system.

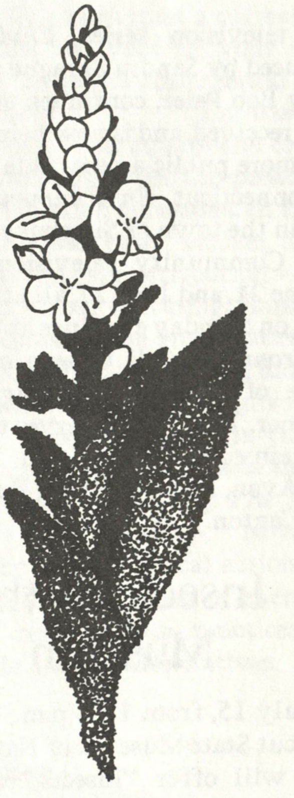


Illustration by Rosemary Gutbrod

Common Mullein
(Verbascum thapsus)

COMMON MULLEIN (*Verbascum thapsus*) is a tall sentinel-like plant with the velvety texture picturesque in many vacant lots, sometimes reaching a height of seven feet. With its more than 30 common names, it is one of the best known members of the figworts.

Mullein is a biennial that forms a basal rosette of large gray-green leaves the first year. The second year a woolly fluted stem appears with small, alternate leaves and a terminal flower spike.

The woolly calyx is five-parted and hidden deeply within the spike. The corolla is yellow, about an inch in width, with five nearly equal parts, connected only slightly at the base. There are five orange stamens. The upper three are hairy and short, while the two lower ones are long and hairless. The blossoming period is from June to September with only a few flowers appearing at one time. The fruit is a round woolly capsule with many brown wrinkled seeds.

Mullein grows along roadsides, in pastures, fields and waste places.

The generic name is a corruption of the Latin *barbascum* meaning "bearded," pertaining to the general hairyness of the plant. Its species name comes from Thapsos, a Greek island, where mullein grew as a native plant.

The common name mullein is derived from the Latin *mollis*, meaning "soft," indicating its soft, woolly leaves.

Mullein has had an almost endless number of uses medically; a tea made from its leaves was used for reducing fever associated with cold and flu; the dried leaves were smoked as a treatment for asthma. Rosettes of mullein leaves are now planted in gardens for the blind so that they may enjoy the pleasure of touching the velvety leaves.

Goldfinches peck away at the flower spikes in search of the numerous seeds, while hummingbirds seek out the fine hairs on the mullein leaves to use as a lining for their nests. ■

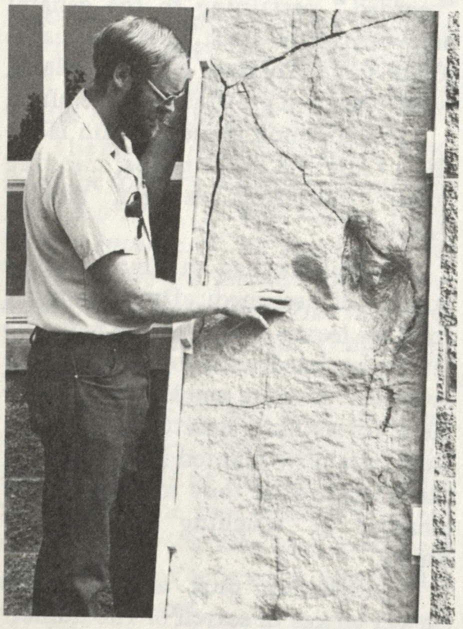
The Bulletin Board

20 Years of Tracks

Dinosaurs weren't the only ones to leave tracks in Rocky Hill. Much of the growth and development of Dinosaur State Park can be traced to Richard Krueger, geologist, who has directed activities at the park since July 6, 1970. His concern and influence as an educator, geologist, botanist, and artist has been ongoing for 20 years.

One of Krueger's greatest contributions is his educational work with school children and the general public. Because of his efforts, the park has a unique dinosaur track casting area and environmentally oriented programs. In conjunction with the Youth Conservation Corps, he completed the trail system, swamp boardwalks, and platform.

As one of his first projects, he worked with studio designers and consultants on the construction of the dilophosaurus model. Krueger was the principal person guiding the design of the Exhibit Center interior and he served as advisor for its construction. To improve the educational programs and exhibits, he researched the flora, fauna, and land forms of the Triassic-Jurassic period and used his artistic talents for the design of the miniature diorama.



Richard Krueger has been a guiding light at Dinosaur S.P. for 20 years. (*Photo: H.C. "Duke" Judd*)

On the park grounds, Krueger has been instrumental, with the help of garden clubs in Rocky Hill, in the development of rock, annual, perennial, butterfly, and bog gardens and has designed an Arboretum of Evolution at the park.

A native of Chicago, Krueger did undergraduate work at Northern Illinois University, and did graduate work in geology at the College of Mines, Idaho. He was employed by the Rochester Museum and Science Center in Rochester, New York, before joining the DEP as a geologist.

Krueger resides in Newington with his wife, Barbara, and young son Michael. His son, Jeff, attends the University of Minnesota. Rich Krueger's friends, the park staff, volunteers, and the Friends of Dinosaur Park Association look forward to working with him for another 20 productive years. ■

Environment on TV

The television series *Environment*, produced by Sandra Sprague and hosted by Bob Paier, continues to be very well received, and is now being seen on two more public access cable channels in Connecticut. *Environment* may be seen in the town of Simsbury on Simsbury Community Television on June 4, June 21, and June 27, all at 9:00 p.m. Also, on Monday evenings at 8:30 p.m., *Environment* will be seen on United Cable of Plainville throughout the summer. This system serves the towns of Plainville, New Britain, Farmington, Avon, Bristol, Berlin, Burlington, and Canton. ■

Insects at the Museum

On July 15, from 1 - 5 p.m., The Connecticut State Museum of Natural History will offer "Insects," a Family Day with hands-on activities for children in Jorgensen Auditorium at The University of Connecticut in Storrs. Live insects, honeybee demonstrations, crafts, and "The Flying Jewels," an exhibit of mounted irridescent bugs will be featured. Admission, payable at the door: Free for Museum members, $1 per nonmember child, $3 per nonmember adult. For information, call 486-4460. ■

Call for Artwork

Late this fall, for the first time ever, the 1991 DEP Calendar will become available. Subjects will include the plants, animals and natural heritage of our state. But we need your help.

So, until July 20, we will be accepting your entries for consideration for inclusion. All final selections will be given full recognition and a choice of one of our many popular publications.

If you would like to have your work considered for inclusion, please send your reproduceable art work and/or photos in 5 X 7 or 8 X 10 format — black and white is preferred, but color acceptable (no slides please) — to: DEP-NRC, 1991 Calendar, Room 553, 165 Capitol Avenue, Hartford, CT 06106. All submissions will be returned. ■

Earth Day, Every Day

Earth Day was a resounding success here in Connecticut and throughout the nation. One of the programs that helped fuel the effort in Connecticut was the educational kit sent to every school teacher in the state. This kit will be used on an ongoing basis to educate the next generation on how they can help save the environment. Please help defray the cost of the program by sending your contribution today. We need your help.

Make checks payable to: Connecticut Earth Day 20, Inc., DEP, Hartford, CT 06016. ■

The Night Sky

June Showers

by

Francine Jackson

Most of the time, when discussing meteor showers, only the really Big Three are usually recalled: the Lyrids, generally seen in mid-April; the Geminids, a beautiful winter evening showcase; and the most famous of them all, the Perseids, set to be drowned out by the moon in August. But, many people don't realize that there are many other lesser-known showers throughout the year, and this month is a good time to watch for some.

A meteor is a chunk of space material that comes too close to the Earth, gets gravitationally attracted to it, and falls through our atmosphere. In most cases, it will burn up entirely as it falls toward the ground. We see it as a flash of light streaking through the evening sky. Usually, a person away from city lights should be able to see a few of these meteors burning overhead in the evening sky every hour.

Occasionally, the Earth, in its path around the sun, encounters a dirty patch. This material in this area is believed to be stuff left behind during a comet's trip(s) around the sun. When the Earth passes through this cosmic junkyard, many more meteors can be seen in the sky. Most of these meteors will appear to come from one specific part of the sky. The constellation in that part of the sky gives the shower its name, with the suffix "id" at the end meaning "family of." Therefore, the Perseids belong to the family of meteors appearing to radiate from the constellation Perseus, the Prince Charming.

This month, a lot of lesser, or minor meteor showers are available for your viewing pleasure. Although, granted, you will not see dozens of meteors lighting up the night, there may be, with the sporadic meteors that pop up all the time, at least enough to make your outdoor time worthwhile.

Tau Herculids -- peak June 3, but some should be seen until mid-June

Scorpiids -- actually two separate showers occurring almost simulataneously. Look in the direction of the Scorpion from late May to mid-June

Arietids -- this early-morning shower peaks June 7. Face east toward the constellation Aries, the Ram, a couple hours before dawn

June Lyrids -- not as dramatic as the Lyrids in April, but still worth a look. Peak night: June 15

Ophiuchids -- June 20 is peak night for this one, which at times has given up to 20 per hour

June Draconids -- although these usually average about six per hour, in 1916 over 100 meteors were visible per hour. Try your luck the evening of June 30. ■

Letters to the Editor

I think it's a good idea to clean up the Sound, because if we don't use sound judgement we won't hear any sounds coming from the Sound.

Carl Silkowski
Vernon

Good format. Simple, direct, and unpretentious.

Mary Anna Tien
Middle Haddam

I enjoy my magazine as I love nature. I feed my birds. It sure costs a lot of money. I love to plant my flowers. I learn so much from this magazine and it's good reading. I just love it. I am in my late 70s. I live alone. I wait for it each it each month. Then I pass it along.

Elwood J. Benson Sr.
Norwich

I would like to suggest a correction to one of the answers in your article "What's Your Environmental I.Q.?" (*Connecticut Environment, April/1990*). You equate the crisis of global warming with the problem of carbon monoxide emissions. In fact, of the greenhouse gases, carbon dioxide makes the largest contribution -- about half -- to global warming. Ranked in order of concern, the greenhouses gases are: carbon dioxide; chlorofluorocarbons and halons; methane; nitrous oxide; and tropospheric ozone (i.e. the "bad" ozone). (Source: *Reducing the Rate of Global Warming: The State's Role,* Renew America, November 1988.) The most practical actions suggested are the promotion of energy efficiency, reforestation practices, and renewable energy alternatives.

Phil Florkoski
Air Management Bureau
DEP

I love your nature articles, especially on plants and birds. They make us aware that we are all a part of the Connecticut environment.

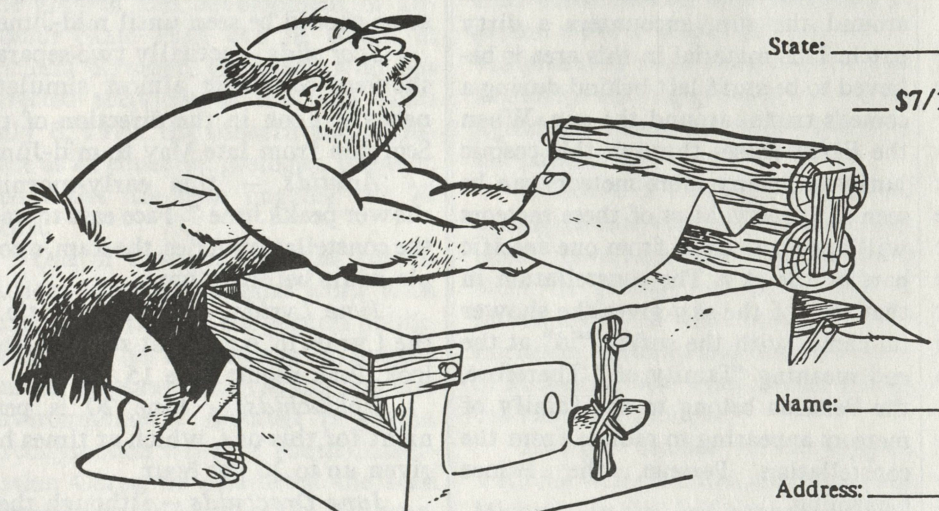
Susan Stepanski
Manchester

Endnote

"But he is not always alone. When the long winter nights come on and the wolves follow their meat into the lower valleys, he may be seen running at the head of the pack through the pale moonlight or glimmering borealis, leaping gigantic above his fellows, his great throat a-bellow as he sings a song of the younger world, which is the song of the pack."

Jack London

You'll be amazed at what Connecticut Environment can do



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